

**ABSTRACT**

This invention relates to methods for rejuvenating primary cells and for making  
5 primary cells of a different type having the same genotype as a primary cell of interest.  
Also encompassed are methods of re-cloning cloned mammals, particularly methods  
where the offspring of cloned mammals are designed to be genetically altered in  
comparison to their cloned parent. Also included are methods for activating  
endogenous telomerase for the purpose of extending the life span of a primary cell.